DOCUMENT RESUME

ED 128 592 95 CE 007 721

TITLE	Audiometric Assistant. A Suggested Guide for a Manpower Training Program.
INSTITUTION	National Association for Hearing and Speech Action, Silver Spring, Md.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	71
NOTE	32p.
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	*Audiology; *Audiometrists; Course Content; Course Objectives; Course Organization; Curriculum; Curriculum Guides; Health Occupations Education; *Health Programs; *Job Training; *Medical Assistants

ABSTRACT

Prepared to assist agency and university programs in the organization of a program to prepare trainees for employment as audiometric assistants, this guide is intended for use by professional individuals who are familiar with clinical speech and hearing problems. The manual contains five teaching modules, each including training time, objectives, module outline, suggested activities, and suggested references. Topics are (1) trainee orientation, (2) the hearing mechanism, (3) communication process, (4) hearing measurement, (5) and work experience training. Introductory material suggests that the sequence of topic presentation should be the result of the instructor's clinical experience and that the guide outlines only minimal knowledge and skill requirements to be obtained by the trainee since additional topics or broader exploration of suggested topics will vary according to the needs, background, and interest of the trainee as well as the instructor's preference. Also included are a job description for audiometric assistants, training facility criteria, trainee qualifications, instructor qualifications, suggestions for the organization of intensive instruction, and the program outline. The appendix contains a brief glossary of professional terms and organizations, plus a suggested list of films and anatomical models. (WL)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED128592

AUDIOMETRIC ASSISTANT

A SUGGESTED GUIDE FOR A MANPOWER TRAINING PROGRAM

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

U.S. Department of Health, Education and Welfare
Elliot L. Richardson, Secretary

U.S. Office of Education
Sidney P. Marland, Commissioner

Division of Manpower Development and Training

Revised Edition

1971

2

CE-007 721

Developed pursuant to a contract with the
U.S. Office of Education
Division of Manpower Development and Training

by

The National Association of Hearing and Speech Agencies
in cooperation with the Department of Defense

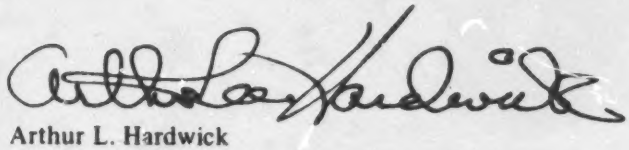
1971

FOREWORD

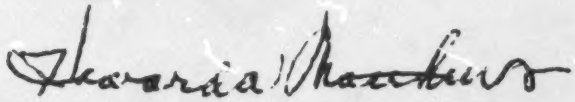
Progress in the education and health fields has brought about a greater awareness of the need for rehabilitation of the hearing handicapped. This requires a more thorough understanding and insight into the technical field of audiometrics and a need for general training programs which will prepare persons (youth, returning servicemen and other adults) for effective service as Audiometric Assistants in the areas of clinical speech and hearing problems.

In a major attempt to furnish educational and training opportunities for persons interested in entry-level jobs as Audiometric Assistants, many individuals and agencies coordinated their efforts with the Office of Education in the planning and developing of this suggested training guide. This document has been issued for use by professional individuals in the organization of a training program. The Assistant who successfully completes the prescribed training program in an approved setting followed by experience in an approved work environment will be able to provide care for patients, handle medical records, and work with health related personnel.

It is hoped that the suggestions in this guide will be applied to the task for successful implementation of training opportunities for persons who are interested in rendering service in the important allied health manpower field of audiometrics.



Arthur L. Hardwick
Associate Commissioner, Bureau of Adult,
Vocational, and Technical Education



Howard A. Matthews
Director, Division of Manpower
Development and Training

DISCRIMINATION PROHIBITED – Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, the Vocational and Technical Education and the Manpower Development and Training programs, like all other programs or activities receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent Office of Education position or policy.

ACKNOWLEDGEMENTS

This guide was prepared for the U.S. Office of Education of the Department of Health, Education and Welfare, in cooperation with the Department of Defense, under contract with the National Association of Hearing and Speech Agencies. The Advisory Board, composed of the following persons, was responsible for the development of this training guide:

Jack E. Andrews
Executive Director, Hearing & Speech Center of St. Joseph County, South Bend, Indiana

•*Jack L. Bangs, Ph.D.
Director, Houston Speech & Hearing Center, Houston, Texas

*Robert J. Briskey
Director of Professional & Educational Services, Zenith Hearing Aid Sales Corporation, Chicago, Illinois

*H. Thomas Buelter
Executive Director, Colorado Hearing and Speech Center, Denver, Colorado

G. Donald Causey, Ph.D.
Chief, Central Audiology & Speech Pathology Program, Veterans Administration Hospital, Washington, D.C.

*Victor S. Garwood, Ph.D.
Chairman, Graduate Program in Communication Disorders, University of Southern California, Los Angeles, California

Aram Glorig, M.D.
Director, Callier Hearing & Speech Center, Dallas, Texas

Terry S. Griffing
Audiologist, Qualitone Company, Minneapolis, Minnesota

William A. Grimm, Ph.D.
Hearing & Vision Conservation, Ohio State Department of Health, Columbus, Ohio

*Richard E. Ham, Ph.D.
Director, School of Hearing & Speech Sciences, Ohio University, Athens, Ohio

Victor H. Hildyard, M.D.
Otologist, Denver, Colorado

Donald F. Krebs
Director, San Diego Speech & Hearing Center, San Diego, California

+*Jerry L. Northern, Ph.D.
Director, Audiological Service, University of Colorado School of Medicine, Denver, Colorado

J. Dennis Ortiz
Executive Director, Michigan Association for Better Hearing & Speech, East Lansing, Michigan

*Ray R. Seitz
Executive Director, Hearing & Speech Services of Rhode Island, Inc., Providence, Rhode Island

Louis M. Stephens
Director, Chattanooga-Hamilton County Speech & Hearing Center, Chattanooga, Tennessee

*R. Vernon Stroud, Ph.D.
Program Director, Department of Speech Pathology & Audiology, University of Cincinnati, Cincinnati, Ohio

Chauncey E. Torrence
Director of Services, St. Louis Hearing & Speech Center, St. Louis, Missouri

*Members of the Curriculum Advisory Committee
+Curriculum Writer
•Deceased May 2, 1971

Special appreciation is extended to Mr. Benjamin A. Drew, Project Advisor, Department of Health, Education and Welfare, Office of Education, Division of Manpower Development and Training and to Lt. Col. Gerald G. Randolph, Director, Army Audiology and Speech Center, Walter Reed Army Medical Center, Washington, D.C., for their advice on this project.

TABLE OF CONTENTS

INTRODUCTION 1-4

Purpose of the Guide 1
Job Description 1
Training Facility Criteria 1
Trainee Qualifications 2
Instructor Qualifications 2
Suggestions for the Organization of Intensive Instruction 3
Duration of Training and Program Outline 3

MAJOR DIVISIONS OF TRAINING PROGRAM 5

PROGRAM IMPLEMENTATION 6-17

Course Preparation 6
Teaching Modules 7-17
Trainee Orientation 7-8
The Hearing Mechanism 9-11
The Communication Process 12-13
Hearing Measurement 14-16
Work Experience 17

CRITERIA FOR EVALUATING TRAINEE READINESS FOR EMPLOYMENT . 18

APPENDIX 19

Glossary 20
Textbooks and References 21-23
Films and Anatomical Models 24-25

INTRODUCTION

Purpose of the Guide

This training guide has been prepared to assist agency and university programs in the organization of a program to prepare trainees for employment as Audiometric Assistants. The training of Audiometric Assistants should be based on intensive clinical work with patients. The content and organization of this guide are intended for use by professional individuals who are familiar with clinical speech and hearing problems.

This training guide does not attempt to delineate instruction in every detail, but it is presented in the form of a suggested program outline. The sequence of topic presentation should be the result of the instructor's clinical experience. Instruction by observation with active student participation is strongly encouraged. The guide outlines only minimal knowledge and skill requirements to be obtained by the trainee. Additional topics or broader exploration of suggested topics will vary according to the needs, background and interest of the trainee as well as the instructor's preference.

Audiometric Assistant: Job Description

The Audiometric Assistant has basic knowledge about anatomy and physiology of the hearing mechanism, elementary physics of sound, basic audiometry, instrumentation, hearing aids and hearing disorders. He may be employed in a wide variety of settings such as speech and hearing centers, public school programs, medical offices, industrial hearing conservation programs, regional health clinics and the hearing aid industry.

The Audiometric Assistant works under the supervision of a qualified individual who deals with the hearing impaired population. He utilizes appropriate equipment to establish valid and reliable audiograms which represent the hearing levels of patients. He is able to deal with patients, handle medical records and work with health-related personnel. The Audiometric Assistant is a person who has successfully completed the prescribed training program in an approved setting, followed by experience in an approved work environment.

Salaries for Audiometric Assistants depend largely on the type of employment facility, regional location and demand for services.

Training Facility Criteria

The intent of this section of the training guide is to describe typical training facilities. It is recognized, however, that flexibility is required in order to meet local requirements. The specific items of suggested equipment utilized by the training facility should be viewed as typical rather than inflexible.

The typical setting should have at least one sound-treated examination booth with audiometers capable of pure-tone air conduction, bone conduction and speech audiometric

testing. A tape deck should also be available for taped speech audiometry. The training facility may have more equipment than that mentioned above, but the training of the Audiometric Assistant should be geared to pure-tone and speech audiometrics.

The academic portions of the suggested program are viewed as complementary course material. Lists of suggested textbooks and films that should be available to the training agency or institution have been included to assist administrators in organizing the program.* It is recommended that the program organizers estimate the available clinical population to insure a sufficient supply of clinical patients to provide thorough exposure to a wide variety of audiometric experiences. It is essential that the trainee work with the tools, equipment and patients which would provide a broad representation of audiometric testing situations. Patients tested by the trainee must be thoughtfully scheduled to match his skills while providing teaching points.

Training facilities should survey their material and equipment on hand prior to initiating the Audiometric Assistant training program. Training facilities should make sure that their testing equipment and clinical testing environments meet the standards specified by the American National Standards Institute.*

Trainee Qualifications

Trainees who have the ability to read and comprehend at grade 12.5 or its equivalent should be able to complete the training program successfully. This judgment shall be made by the training facility. In addition to his reading ability, the trainee should have a high interest in working with people and rendering services. He should have a moderate level of dexterity that will permit him to operate the appropriate equipment. Trainees should be able to work quickly, tactfully and carefully. They should be persons who adapt to problem situations easily and must be able to work under close supervision.

Instructor Qualifications

The Audiometric Assistant training program revolves around work experience with hearing impaired patients. It is suggested that instructors for this program work actively in the provision of direct services to the hearing impaired population. Instructors need not necessarily hold certification in audiology. In fact, portions of the training may be better taught by medical personnel, speech pathologists or hearing aid dealers. Instructors should be selected for their knowledge of the topic, their ability to present the material in an intensive, yet meaningful manner and their genuine interest in instructing Audiometric Assistant trainees.

It is required, however, that supervision of the trainees' practicum be the responsibility

*See Appendix.

of an audiologist who meets the academic and work experience standards established by the American Speech and Hearing Association for the Certificate of Clinical Competence in Audiology.

Suggestions for the Organization of Intensive Instruction

The instructional program should make maximum use of teaching through experience as well as visual aids, models, and field trips. It should be noted that this suggested program guide is not strongly academic. The intent is that the trainee learn audiometric procedures through planned, intensive experience with actual patients under the close supervision of a qualified audiologist.

The allocation of clock hours per teaching module indicates the relative emphasis on each subject. Changes in this distribution of instruction time may be necessary, depending on the ability and background of the trainees and the particular requirements of local employment opportunities. The proportion of academic instruction to work experience represents a necessary minimal ratio. Sufficient time should exist both during the training period and the work experience period to permit additional instruction for the development of knowledge and experience in related skills and techniques which may be useful to the Audiometric Assistant. Examples of such related skills include electronystagmography, pediatric audiology, or medical aide duties. Within this guide, the teaching modules are shown separately. However, in planning the program, every effort should be made to bring about maximum integration of the material between lectures, clinical testing situations, anatomical models, films and other instructional media.

Duration of Training and Program Outline

The program is divided into two phases. The initial phase is designed as an intensive two-month program and includes five modules of instruction and laboratory exercises. In addition, the trainee must have a minimum of 200 hours of actual work experience, the majority of which should consist of the testing of patients. Observation time will be at the discretion of the program instructors. Upon completion of the intensive training period, the trainee must be able to perform independently *pure-tone air conduction* and *bone conduction tests* and *speech audiometry*. This two-month period is also to be utilized by the instructors and the responsible supervisor to secure as much information as possible about the trainee. This information will aid the instructors and the supervisor in planning the second phase of training.

Prior to entrance in the second phase of training, the trainee must pass a written proficiency examination provided by the National Association of Hearing and Speech Agencies. Trainees who present evidence of at least 200 hours of audiometric experience and who are able to achieve a satisfactory mark on the proficiency examination may have the initial two-month intensive training period waived by the training facility faculty.

*See Appendix.

The second phase of training for the Audiometric Assistant trainee is four months of work experience. The work experience assignment is to be the responsibility of the training facility. The work experience setting, however, may include any facility where Audiometric Assistants may be employed.

During the four-month work experience period, the training facility retains supervisory responsibility for the Audiometric Assistant trainee. That is, the training facility must provide direction and critical evaluation of the trainee's work. Monthly summaries of the trainee's work experience and supervisor evaluations will be filed on standard forms with the National Association of Hearing and Speech Agencies. Because of the brief training period and the fact that the trainee so quickly enters the field of health service, more supervision is needed than is true of standard academic programs.

MAJOR DIVISIONS OF TRAINING PROGRAM

Title	Suggested Clock Hours	
	Didactic	Laboratory
INITIAL PHASE		
Trainee Orientation	2	0
Hearing Mechanism	4	4
Communication Process	2	4
Hearing Measurement	7	36 (Lab. Exercises) 200 (Practice)
	15 Hours	244 Hours
SECONDARY PHASE		
Work Experience	0	4 Months

PROGRAM IMPLEMENTATION

Course Preparation

It is recognized that different professional settings and audiometric testing facilities will utilize the suggested program format differently, and it is understood that the training program will recognize and allow for such differences. The best presentation is, of course, one that has been thoroughly prepared by the instructor and based on his own experience and manner of teaching. Although instructors will differ in their ways of organizing and coordinating their presentations, it is agreed that the purpose of a lesson is effective and meaningful instruction.

Written plans may be brief, but the good instructor will note the following before the class starts:

1. The goals or objectives of the lesson.

2. The outline and suggested time schedule for the lesson including:

   a. An interesting approach to introduce the lesson.

   b. Instruction which will help the trainees discover new facts and principles, solve realistic problems and practice new skills.

   c. A way to summarize the lesson thereby helping the trainees arrive at some valid conclusions.

3. The teaching materials and references to be used.

TEACHING MODULE I

Trainee Orientation

Training Time: Didactic 2 hours.

Objectives: To introduce the trainee to the nature and scope of the program and to its relation to the field of audiology;

To provide the trainee with an understanding of the functions of the Audiometric Assistant;

To define for the trainee the extent and limits of his duties and his responsibility to his patients and to his supervisor.

Module Outline:

A. Program Orientation

1. Program objectives
2. Length of program
3. Daily schedule
4. Standards of performance
5. Laboratory exercises and outside readings
6. Work experience

B. Vocational Opportunities

1. Employment settings
2. Vertical advancement
3. Horizontal mobility
4. Advanced training
5. Economics

C. Dynamics of Employment

1. Ethical obligations
2. Supervisory authority and responsibility
3. Personal relations
4. Structural hierarchy
5. Scope of the Audiometric Assistant's function

Suggested Activities:

1. Tour the training facilities and meet the professional and administrative staffs.

2. Visit various audiometric testing facilities in addition to the training institution.

3. Observe audiometric testing.

Suggested Reference Sources for Instructor:

1. DAVIS, HALLOWELL and S. RICHARD SILVERMAN, *Hearing and Deafness*, (3rd Edition), Holt, Rinehart and Winston, New York, N.Y., 1970.

2. NEWBY, HAYES A., *Audiology: Principles and Practice*, (2nd Edition), Appleton-Century-Crofts, Inc., New York, N.Y., 1964.

TEACHING MODULE II

The Hearing Mechanism

Training Time: Didactic 4 hours; Laboratory 4 hours.

Objectives: To provide a general understanding of the anatomical and physiological characteristics of the human hearing mechanism;

To familiarize the trainee with common hearing disorders;

To instruct the student in the fundamentals of otoscopy;

To relate hearing pathologies to general anatomy.

Module Outline:

A. Anatomical Terminology

B. Anatomy of the External Ear

1. General description
2. Auricle
3. External auditory canal
4. Tympanic membrane

C. Anatomy of the Middle Ear

1. General description
2. Ossicular chain
3. Eustachian tube

D. Anatomy of the Inner Ear

1. General description
2. Cochlea
3. Vestibular mechanism

E. Pathway of Sound

1. Conductive mechanism
2. Sensorineural mechanism

F. Hearing Disorders

1. Conductive hearing losses
2. Sensorineural hearing losses

G. Physical Examination of the Ear

1. Symptoms of ear disease
2. Use of the otoscope

Suggested Activities:

1. Study structural models of the ear to visualize the anatomical structures.

2. Participate in otoscopic inspection of at least thirty (30) people of various age groups and describe observations.

3. Make drawings of the major anatomical structures of the hearing mechanism.

4. Describe the relationship between the various structures of the ear using anatomical terminology.

5. View film "Silent World, Muffled World."

Suggested Reference Sources for Instructor:

1. BOIS, LAWRENCE A., JEROME A. HILGER and ROBERT E. PRIEST, *Fundamentals of Otolaryngology*, (4th Edition), W.B. Saunders Co., Philadelphia, Pa., 1964.

2. CIBA COLLECTION OF MEDICAL ILLUSTRATIONS, *The Nervous System*, Volume I, CIBA Press, Summit, N.J., 1953.

3. GRANT, J.C.B., *Atlas of Anatomy* (5th Edition), Williams and Wilkins, Baltimore, Md., 1962.

4. MYERS, DAVID, WOODROW D. SCHLOSSER, ROBERT J. WOLFSON, RICHARD A. WINCHESTER and NORMAN H. CARMEL, *CIBA Clinical Symposia: Otologic Diagnosis and the Treatment of Deafness*, Volume 22, No. 2, CIBA Press, Summit, N.J., 1970.

5. STEVENS, S.S., and FRED WARSHOFSKY, *Sound and Hearing*, Life Science Library, Time, Inc., New York, N.Y., 1965.

6. WOLFSON, ROBERT J., DAVID MYERS, WOODROW D. SCHLOSSER and RICHARD A. WINCHESTER, *CIBA Clinical Symposia: Vertigo*, CIBA Press, Summit, N.J., 1965.

7. ZEMLIN, WILLARD R., *Speech and Hearing Science: Anatomy and Physiology*, Prentice-Hall, Englewood Cliffs, N.J., 1968.

TEACHING MODULE III

The Communication Process

Training Time: Didactic 2 hours; Laboratory 4 hours.

Objectives: To provide the trainee with a fundamental appreciation of the normal development of speech and language as related to hearing;

To relate physical growth in terms of communication abilities;

To familiarize the trainee with the communicative disorders associated with hearing handicaps;

To introduce the trainee to the rehabilitation of the hearing handicapped.

Module Outline:

A. Development of Human Communication as related to Hearing:

1. Normal development of speech, language and behavior including socio-environmental language patterns.
2. Effects of developmental failure or retardation on behavior and communication.
3. Effects of hearing impairment on behavior and communication.

B. Habilitation and Rehabilitation of Communication Disorders:

1. Physical disorders and their relationship to communication.
2. Auditory rehabilitation.

Suggested Activities:

1. Visit special education classes in local area.

2. Observe therapy sessions with the hearing handicapped.

Suggested Reference Sources for Instructors:

1. GRIFFITH, JERRY (Editor), *Persons with Hearing Loss*, Charles C· Thomas, Springfield, Ill., 1970.

2. MYKLEBUST, HELMER, *Auditory Disorders in Children*, Grune and Stratton, New York, N.Y., 1970.

3. MYKLEBUST, HELMER, *The Psychology of Deafness*, Grune and Stratton, New York, N.Y., 1969.

4. O'NEILL, JOHN J. and HERBERT J. OYER, *Visual Communication for the Hard of Hearing*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1961.

5. SANDERS, DEREK A., *Aural Rehabilitation*, Prentice-Hall, Inc. Englewood Cliffs, N.J., 1971.

6. VAN RIPER, CHARLES, *Speech Correction: Principles and Methods*, (4th Edition), Prentice-Hall, Inc., Englewood Cliffs, N.J., 1963.

TEACHING MODULE IV

Hearing Measurement

Training Time: Didactic 7 hours; Laboratory 36 hours; Audiometric Practice 200 hours.

Objectives: To teach the trainee the fundamentals of basic audiometry, elementary physics of sound and acoustic instrumentation;

To instruct the trainee in understanding hearing aid function and to assist in the hearing aid evaluation procedure;

To enable the trainee to conduct valid and reliable pure-tone, air conduction and bone conduction audiometric examinations and to teach the trainee the essentials of clinical masking and speech audiometry;

To familiarize the trainee with the forms, records and charts of the training institution.

Module Outline:

A. The Nature of Sound

1. Terminology
2. Frequency and pitch
3. Intensity and loudness
4. The decibel
5. Complex sounds and the speech signal

B. Methods of Measurement

1. Screening audiometry
2. Pure-tone air conduction and bone conduction threshold determination
3. Clinical masking
4. Speech reception threshold determination
5. Speech discrimination testing procedures

C. Instrumentation

1. Common audiometric instruments
2. Audiometer performance checks

3. Equipment trouble shooting
4. Common noise measurement techniques
5. Use of sound level meter

D. Hearing Aids

1. Orientation to hearing aids
2. Function and malfunction of hearing aids
3. Earmold impressions
4. Hearing aid evaluation techniques
5. Measurement of performance characteristics of hearing aids

Laboratory Exercises:

1. Perform audiometric evaluations of ten (10) normal listeners, including air conduction, bone conduction and speech audiometric tests.

2. Set up various types of audiometric equipment for clinical use.

3. Check output levels of pure-tone and speech audiometers with calibration equipment.

4. Make sound level measurements of various types of environmental noise.

5. Establish bone conduction norms on ten (10) normal hearing persons and ten (10) persons with sensorineural hearing loss.

6. Make ten (10) earmold impressions.

7. Study the external and internal parts of a variety of hearing aids.

8. View film "The Speech Chain."

Suggested Reference Sources for Instructors:

1. DI CARLO, LOUIS, *The Deaf*, Foundations of Speech Pathology Series, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1964.

2. O'NEILL, JOHN J., *The Hard of Hearing*, Foundations of Speech Pathology Series, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1964.

3. O'NEILL, JOHN J. and HERBERT J. OYER, *Applied Audiometry*, Dodd, Mead and Company, New York, N.Y., 1966.

4. SATALOFF, JOSEPH, *Hearing Loss*, J.B. Lippincott and Company, Philadelphia, Pa., 1966.

5. ZENITH TRAINING COURSE, *Programmed Instruction in Hearing*, Units I-XX, Zenith Hearing Aid Sales Corp., Chicago, Ill., 1965.

TEACHING MODULE V

Work Experience Training

Training Time: Laboratory 4 months.

Objectives: To develop the trainee's knowledge and skills in performing air conduction, bone conduction and speech audiometry with many types of clinical patients;

To provide, if possible, a variety of work experience exposure which should broaden the trainee's employment opportunities;

To produce a strong base of clinical practicum in addition to which advanced or specialized training may be applied.

Suggested Reference Sources for Instructors:

1. GLORIG, ARAM (Editor), *Audiometry – Principles and Practice*, Williams and Wilkins, Baltimore, Md., 1965.

2. HIRSH, IRA, *Measurement of Hearing*, McGraw-Hill Book Company, New York, Toronto and London, 1952.

3. JERGER, JAMES (Editor), *Modern Developments in Audiology*, Academic Press, New York and London, 1963.

4. ROSE, DARRELL E. (Editor). *Audiological Assessment*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1971.

CRITERIA FOR EVALUATING TRAINEE READINESS FOR EMPLOYMENT

Technical performance is the primary criterion for determining whether the trainee is ready for employment as an Audiometric Assistant. However, the trainee's understanding and insight into how to provide his newly acquired skills and services are of such importance that every attempt must be made to evaluate trainee progress in this area as well.

The Audiometric Assistant trainee must have obtained a passing mark on his proficiency test as administered by the National Association of Hearing and Speech Agencies before entering into the second phase of his training. Other devices selected by the training facility may be utilized at any time to enable the instructor and the trainee to evaluate the trainee's progress. In addition to the trainee's fundamental knowledge of the subject matter and his competent testing abilities, successful completion of the training program will not be recognized without a written recommendation of the training facility. An Audiometric Assistant diploma will be issued by the National Association of Hearing and Speech Agencies upon the trainee's completion of requirements and the recommendation of the training facility.

The following kinds of personal qualities, work habits and competencies of the trainee are important to develop or strengthen during the training and apprenticeship program:

1. Courtesy and tact in dealing with supervisors, professional people and the general public.
2. Acceptable appearance through cleanliness, neatness and sensible choice of clothing.
3. Cooperative attitude toward work.
4. Understanding of his own role and the roles of others.
5. Understanding and execution of instructions and directions.
6. Demonstration of ability to work with or without immediate supervision.
7. Demonstration of ability to develop and follow a work plan or schedule.
8. Demonstration of techniques and methods of keeping equipment and working facilities orderly and in good condition.

APPENDIX

BRIEF GLOSSARY OF PROFESSIONAL TERMS AND ORGANIZATIONS

American National Standards Institute (ANSI) – a non-profit organization consisting of representatives from scientific, professional, trade, consumer and labor organizations for the purpose of developing and promulgating standards. These standards are created both for voluntary and legal use in order to ensure the safety and welfare of the consumer and the general public. ANSI is located at 1430 Broadway, New York, N.Y. 10018.

American Speech and Hearing Association (ASHA) – a scientific and professional organization of audiologists and speech pathologists. Its purposes are to encourage basic scientific study of the processes of human communication with special references to speech, hearing and language disorders and to foster improvement of clinical procedures with such disorders. It is located at 9030 Old Georgetown Road, Washington, D.C. 20014.

Audiologist – a professional person holding at least a master's degree or the equivalent in the specialty of audiology. An audiologist's usual function is the clinical diagnosis, counseling and therapy of hearing impaired patients. Audiologists may also be involved in teaching, research, supervision and administration.

Audiology – the study of hearing and hearing disorders. It originally evolved from the fields of speech pathology and otology, hence its interest is both in the medical and the communicative aspects of human hearing.

Audiometric Assistant – a person who has successfully completed a prescribed program in audiometric training at an approved training site, followed by work experience in an approved work setting.

Audiometry – the technique of measuring hearing using the appropriate electroacoustic equipment.

National Association of Hearing and Speech Agencies (NAHSA) – formerly the American Hearing Society, an agency whose members are community service agencies and lay and professional people who are interested in and working with communicatively handicapped persons. Its primary concern is to encourage the delivery of quality services to communicatively handicapped people through field services, training and dissemination of information. It is located at 919 18th Street, N.W., Washington, D.C. 20006.

Otolaryngologist – a physician who specializes in the diagnosis and treatment of ear, nose and throat diseases.

Otologist – an otolaryngologist who has limited his practice to the diagnosis and treatment of ear pathologies.

Speech Pathologist – a professional person trained in the development and disorders of human communication who is primarily involved in the diagnosis and therapy of speech disorders.

SUGGESTED LIST OF REFERENCES FOR INSTRUCTORS

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, *Guide for Conservation of Hearing in Noise*, Supplement to the Transactions, AAOO, Revised 1969.

AMERICAN NATIONAL STANDARDS INSTITUTE, Publications S1.4-1961, S1.6-1967, S3.1-1960, S3.6-1969, New York, N.Y.

AMERICAN SPEECH AND HEARING ASSOCIATION, *Noise as a Public Health Hazard*, ASHA Reports Number 4, Washington, D.C. 1969.

* BERGER, KENNETH, *The Hearing Aid: Its Operation and Development*, National Hearing Aid Society, Detroit, Mich., 1970.

BERRY, MILDRED F. and JON EISENSON, *Speech Disorders, Principles and Practices of Therapy*, Appleton-Century-Crofts, New York, N.Y., 1956.

BOIS, LAWRENCE R., JEROME A. HILGER and ROBERT E. PRIEST, *Fundamentals of Otolaryngology*, (4th Edition), W.B. Saunders Co., Philadelphia and London, 1964.

CIBA COLLECTION OF MEDICAL ILLUSTRATIONS, *The Nervous System*, Volume I, CIBA Press, Summit, N.J., 1953.

DALE, D.M.C., *Applied Audiology for Children*, Charles C Thomas, Springfield, Ill., 1962.

* DAVIS, HALLOWELL and S. RICHARD SILVERMAN, *Hearing and Deafness*, (3rd Edition), Holt, Rinehart and Winston, New York, N.Y., 1970.

DI CARLO, LOUIS M., *The Deaf*, Foundations of Speech Pathology Series, Prentice-Hall Inc., Englewood Cliffs, N.J., 1964.

EISENSON, JON, JEFFREY AUER and JOHN V. IRWIN, *The Psychology of Communication*, Appleton-Century-Crofts, New York, N.Y., 1963.

* EMPLOYERS INSURANCE OF WAUSAU, *Guide for Industrial Audiometric Technicians*, (2nd Edition), Wausau, Wis., 1967.

GLORIG, ARAM (Editor), *Audiometry – Principles and Practices*, Williams and Wilkins, Baltimore, Md., 1965.

* GLORIG, ARAM, *Noise and Your Ear*, Grune and Stratton, New York, N.Y., 1958.

GRAHAM, A. BRUCE, (Editor), *Sensorineural Hearing Processes and Disorders*, Little Brown and Co., Boston, Mass., 1967.

GRANT, J.C.B., *Atlas of Anatomy*, (5th Edition), Williams and Wilkins, Baltimore, Md., 1962.

GRIFFITH, JERRY, (Editor), *Persons With Hearing Loss*, Charles C Thomas, Springfield, Ill., 1970.

* HEADQUARTERS, DEPARTMENT OF THE ARMY, *Eye, Ear, Nose, and Throat Specialist*, Technical Manual 8-234, Government Printing Office, Washington, D.C., 1970.

HIRSH, IRA J., *The Measurement of Hearing*, McGraw-Hill Book Co., Inc., New York, Toronto and London, 1952.

JERGER, JAMES, (Editor), *Modern Developments in Audiology*, Academic Press, New York and London, 1963.

LLOYD, LYLE and ROBERT T. FULTON, *Audiometry for the Retarded*, Williams and Wilkins, Baltimore, Md., 1970.

* MAICO HEARING INSTRUMENTS, *Maico Audiological Library Reports*, Volumes I-VII, Minneapolis, Minn., 1962-1970.

McCONNELL, FREEMAN and PAUL H. WARD, *Deafness in Childhood*, Vanderbilt University Press, Nashville, Tenn., 1967.

* MYERS, DAVID, WOODROW D. SCHLOSSER, ROBERT J. WOLFSON, RICHARD A. WINCHESTER and NORMAN H. CARMEL, *CIBA Clinical Symposia: Otologic Diagnosis and the Treatment of Deafness*, Volume 22, No. 2, CIBA Press, Summit, N.J., 1970.

MYKLEBUST, HELMER, *Auditory Disorders in Children*, Grune and Stratton, New York, N.Y., 1970.

MYKLEBUST, HELMER, *The Psychology of Deafness*, Grune and Stratton, New York, N.Y., 1969.

* NEWBY, HAYES A., *Audiology: Principles and Practice*, (2nd Edition), Appleton-Century-Crofts, New York, N.Y., 1964.

* O'NEILL, JOHN J., *The Hard of Hearing*, Foundations of Speech Pathology Series, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1964.

O'NEILL, JOHN J. and HERBERT J. OYER, *Visual Communication for the Hard of Hearing*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1961.

* O'NEILL, JOHN J. and HERBERT J. OYER, *Applied Audiometry*, Dodd, Mead and Company, New York, N.Y., 1966.

ROSE, DARRELL E., (Editor), *Audiological Assessment*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1971.

SANDERS, DEREK A., *Aural Rehabilitation*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1971.

SATALOFF, JOSEPH, *Hearing Loss*, J.B. Lippincott and Company, Philadelphia, Pa., 1966.

* STEVENS, S.S. and FRED WARSHOFSKY, *Sound and Hearing*, Life Science Library, Time Inc., New York, N.Y., 1965.

U.S. DEPARTMENT OF LABOR, Bureau of Labor Standards, Workplace Standards Administration, *Guidelines to the Department of Labor's Occupational Noise Standards for Federal Supply Contracts*, Bulletin 334, Washington, D.C., 1970.

VAN RIPER, CHARLES, *Speech Correction, Principles and Methods*, (4th Edition), Prentice-Hall, Inc., Englewood Cliffs, N.J., 1963.

WATSON, DAVID O., *Talk With Your Hands*, available from the author, Winneconne, Wis.

* WOLFSON, ROBERT J., DAVID MYERS, WOODROW D. SCHLOSSER and RICHARD A. WINCHESTER, *CIBA Clinical Symposia: Vertigo*, CIBA Press, Summit, N.J., 1965.

ZEMLIN, WILLARD R., *Speech and Hearing Science: Anatomy and Physiology*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1968.

* ZENITH TRAINING COURSE, *Programmed Instruction in Hearing*, Units I through XX, Zenith Hearing Aid Sales Corporation, Chicago, Ill., 1965.

* These references suitable for trainees' use.

SUGGESTED LIST OF FILMS AND ANATOMICAL MODELS

AN APPROVED TECHNIQUE FOR PURE-TONE AIR CONDUCTION AUDIOMETRY

14 minute, sound, color, 16mm. To instruct medical and paramedical personnel in the techniques of professionally accepted audiometric testing. Available from Price Film Makers, 3491 Cahuenga Blvd., Hollywood, California 90028. Purchase price, $220.00, rental $25.00.

BREAKING THE SOUND BARRIER

28-½ minute, sound, color, 16mm. The films shows some of the different causes and handicapping effects of hearing disorders. Its primary purpose is to encourage high school and college students to enter careers in speech, hearing and deaf education. Produced by the National Association of Hearing and Speech Agencies, narrated by Nanette Fabray and distributed free of charge by Association Films, Inc., 600 Grand Avenue, Ridgefield, N.J. 07657.

EAR PROTECTION IN NOISE

12 minute, sound, color, 16mm. This film is designed to illustrate the danger of prolonged exposure to high levels of noise and to demonstrate how ear protectors should be worn and cared for. Available from Price Film Makers, 3491 Cahuenga Blvd., Hollywood, Calif. 90028. Purchase Price $200.00, rental $25.00.

HEARING: A FORGOTTEN SENSE

17-½ minute, sound, color, 16mm. This film's purpose is to familiarize employees, management and general audiences with the personal need for hearing conservation. Available from Price Film Makers, 3491 Cahuenga Blvd., Hollywood, Calif. 90028. Purchase price $225.00, rental $35.00.

HEAR – IT TAKES TWO

Part I, Hear (The Personal Approach). Workmen tell the real story of why ear protectors must be used in noise areas (16 minutes).

Part II, It Takes Two. (The Management Approach). More information on hearing conservation. 4-½ minutes. Available from Price Film Makers, 3491 Cahuenga Blvd., Hollywood, Calif. 90028. Purchase price $350.00, rental $35.00.

HOW THEY HEAR

Set of 10, 35mm, Kodachrome color slides. Available with 33-1/3 rpm record. An audio-visual demonstration of hearing loss. A recording simulates several types of hearing loss, and discusses the hearing mechanism, causes and effects of various types of hearing impairment. The accompanying slides use audiograms to describe hearing losses. Available from Gordon M. Stowe & Associates, P.O. Box 233-A, Northbrook, Ill. 60062. Recording $8.75; color slides $4.50 per set. .

SILENT WORLD, MUFFLED WORLD

29 minute, sound, color, 16mm. Animation explains the physiology of the ear, the mechanics of the hearing process and hearing impairment caused by disorders of the hearing mechanism, narrated by Gregory Peck. Includes a sequence of middle ear micro-surgery. Available from U.S. Department of Health, Education and Welfare, Public Health Service, Audio-Visual Facility, Atlanta, Ga. 30333. Attention: Distribution Unit.

Anatomical Models Available Through:

BUSH, G.F., ASSOC., Box 175, Princeton, N.J. 08540.

CAROLINA BIOLOGICAL SUPPLY, 2700 York Road, Burlington, N.C. 27215.

CLAY-ADAMS, INC., 141 E. 25th Street, New York, N.Y. 10010.

DENOYER-SEPPERT, 5235 N. Ravenswood Avenue, Chicago, Ill. 60640.

WARD OF CALIFORNIA, P.O. Box 1749, Monterey, Calif. 93942.